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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,270	08/27/2003	Yifan Gong	TI-35988	6432

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EXAMINER	
LENNOX, NATALIE	

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
09/27/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
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Office Action Summary	Application No.	Applicant(s)	
	10/649,270	GONG ET AL.	
	Examiner	Art Unit	
	Natalie Lennox	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *6 and 9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,8,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action has been issued in response to the amendments filed on July 3, 2007. Claims 1-11 are pending with claims 1, 4, 7, and 8 amended, claims 6 and 9 cancelled, and claims 10 and 11 new.

Specification

1. The disclosure is objected to because of the following informalities: On paragraph [0030] for λ_2 the sentence reads "[...] of the first estimated formant." Examiner believes that it should read the "second estimated formant." Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 1 and 11, the variables "M" and "MAX_dB_DN" are not defined in the claim. Both variables "M" and "MAX_dB_DN," are presented in the claim as representing some value, however, no explanation as to where they obtain the value or what value they're representing is given in the claim or the specification. The specification does mention values "used" in "applicant's preferred embodiment,"

however it is not specified if these values are fixed for the system or if they are somehow obtained throughout the processing.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mauro et al. (US 2001/0001853) and Tasaki (US Patent 5,822,732).

As per claim 10, Mauro et al. teach a noise-resistant utterance detector comprising the steps of:

accepting a speech utterance input signal (Mauro et al.'s paragraph [0010] "frequency domain transformed speech signal")

removing background noise from the utterance signal according to a spectral subtraction method to get a noise subtracted signal (Mauro et al.'s noise suppressor 108 from Figs. 1A and 1B),

calculating the autocorrelation from the inverse filtered signal to get an autocorrelation result (Mauro's Paragraph [0039], wherein the rate decision element 212 of Fig. 2 for determining the presence of speech, may be substituted by a normalized autocorrelation function (NACF) which measures periodicity in the speech frame), and

detecting that a frame of the signal being processed is or is not speech based on a threshold applied to the autocorrelation result (Mauro's speech decision element 216 in Fig. 2, also paragraph [0059]).

However, Mauro et al. does not specifically mention

filtering the noise subtracted signal with a spectral inverse filter to get an inverse filtered signal; and

locating close low-frequency formants in the noise subtracted signal if they exist and inserting spectral valleys between said formants before inverse filtering.

Conversely, Tasaki teaches

filtering the noise subtracted signal with a spectral inverse filter to get an inverse filtered signal (Tasaki's inverse LPC filter 205 from Fig. 1).

locating close low-frequency formants in the noise subtracted signal if they exist and inserting spectral valleys between said formants before inverse filtering (Tasaki's LSP modification 217 from Fig. 1, PARCOR modification 236 from Fig. 19, LAR modification 242 from Fig. 23, also Col. 19, lines 12-18).

It would have been obvious to one having ordinary skill in the art to use the features of an inverse filter, and locating close low-frequency formants and inserting spectral valleys between said formants as taught by Tasaki for Mauro et al.'s method for detecting speech as modified above because Tasaki provides a system and a method for extracting from the input speech signals parameters indicative of their characteristics, transmitting or storing the extracted parameters, and synthesizing the original speech signals on the basis of the transmitted or stored parameters. More specifically, Tasaki provides a system, a method and a filter for enhancing the quality of the signal such as a speech intelligibility. More specifically, he provides speech enhancement which is suitable for improving the speech intelligibility of the signal

having distortions caused by analog transmission or the signal received by the hard-of-hearing aid apparatus and which is suitable for improving the brightness of the speech to be broadcasted or to be output by a loud-speaker (Col. 1, lines 13-30).

Allowable Subject Matter

6. Claim 1 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

7. Claims 2-5, 7, 8, and 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zinser, Jr. et al. (US Patent 6,098,036) provides a speech coding system and method including a spectral formant enhancer.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie Lennox whose telephone number is (571) 270-1649. The examiner can normally be reached on Monday to Friday 9:30 am - 7 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NL 09/14/2007

RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER